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ISA/RC

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

INTERNATIONAL SECURITY AFFAIRS

12 AUG 1972

In reply refer to:
I-35733/72ct

MEMORANDUM FOR SECRETARY OF DEFENSE

SUBJECT: Chemical Warfare Study--NSSM 157

In response to your chemical weapons negotiating initiative, Henry Kissinger issued NSSM 157, requesting a review of the United States position on chemical weapons prohibitions. An ad hoc group composed of representatives of State, Defense, CIA, ACDA, and NSC have now prepared the required study, drawing, in part, on a study we earlier prepared for you. The new study (Tab B), which has received approval of the participating agencies at the working level, discusses the pros and cons of proceeding with a new initiative and then presents seven negotiating options:

1. Treaty which would limit stockpiles and prohibit transfer.

2. Treaty prohibiting production and transfer.

3. Treaty prohibiting stockpiles as well as production and transfer.

4. Comprehensive treaty.

5. Treaty prohibiting defensive equipment.

6. Unilateral statement announcing substantial U.S. stockpile reductions.

7. Unilateral moratorium on certain U.S. CW activities.

Since the study covers about the same ground that you considered before deciding on the position expressed in your 12 July letter (Tab C) to the Secretary of State, we believe that there is no need for further coordination and that you should reaffirm your support of option 2. In doing so, you should, however, be aware that the Joint Chiefs of Staff have shifted their position away from option 2 to option 1, on the grounds that it offers a better opportunity to maintain a deterrent capability. The arguments against this and other options remain as those you addressed earlier.

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Recommendation:

I understand that Henry Kissinger will soon ask for your views; therefore, recommend that you anticipate request by sending the attached memorandum (Tab A).

G. Warren Nutter

Attachments: (3)
1. Memorandum to Henry Kissinger, Tab A
2. New Study, Tab B
3. SecDef 12 July letter to SecState, Tab C

Distribution:
Signer, cy 1, w/atchs (including cys 1 & 2 of Tab A w/cys R-1-1 & R-1-2, I-35640/72, dtd. 7/12/72, SecDef Control 3484, to Kissinger)
ASD/ISA, cy 2, w/atchs (including cy 3 of Tab A w/cy R-1-3, I-35640/72)
DASD/PP&NSCA, cy 3, w/atchs (including cy 4 of Tab A w/cy R-1-4, I-35640/72)
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Chron, cy 10, w/atchs (including cy 11 of Tab A, w/o I-35640/72)
Stayback, cy 11, w/atchs (including cy 12 of Tab A, w/o I-35640/72)

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NOTE: All record copies are provided w/o Tab C, as it is Tab A of the memorandum to Dr. Kissinger (included as noted).

August 11, 1972 [redacted]

RESPONSE TO NSSM 157

REVIEW OF UNITED STATES POSITION ON CHEMICAL WEAPONS PROHIBITIONS

[redacted]

RESPONSE TO NSSM 157

REVIEW OF UNITED STATES POSITION ON

CHEMICAL WEAPONS PROHIBITIONS

I. SUMMARY AND OPTIONS

A. Background Considerations

During the past four years there has been considerable international discussion about possible arms control measures for chemical weapons. This has been the principal subject of debate this year at the Geneva Conference of the Committee on Disarmament (CCD). The United States is now being asked by the Soviets, some of our allies, and other countries what steps if any we are prepared to take in this area.

This spring the Soviets put forward a draft convention calling for the total elimination of chemical weapons -- an approach that has broad appeal, particularly to non-aligned countries. The Soviets have made clear, however, that they desire to enter into concrete negotiations and hope to have counter-proposals from the US. Our allies have as yet taken no firm positions on possible chemical weapons limitations. The British have suggested a phased approach to CW arms control starting either with a prohibition on the production of CW agents or alternatively with the destruction of stockpiles; the scope of a treaty would be related to practical and negotiable possibilities for verification.

Our position has been that the best way to make progress is through study of the complex issues involved. Others now want to go beyond this study stage to treaty negotiations. Our response or lack of response will shape future debate and negotiation on CW controls.

The basic question we must ask ourselves is whether -- in light of the overall military situation, political constraints, and the specific possibilities and problems of limiting chemical weapons -- any arms control steps in this field would be in our overall national interest. We must also consider how to handle the negotiating situation in the light of what makes sense for us on security grounds.

A number of facts and considerations are immediately relevant to an assessment of these questions and of the options discussed in this summary:

-- There is no dependable way to verify compliance with most prohibitions or limitations on chemical weapons. We could have no confidence of detecting a change in the USSR's CW posture through national means. Even on-site inspection -- which would be acceptable to the US only if limited to declared military facilities and which would probably not be acceptable at all to the Soviets -- would add very little technical assurance in spite of its possible additional deterrent effect. International procedures for exchanging relevant data would provide only a modest political restraint against non-compliance.

-- In contrast to biological weapons, chemical weapons have been used; they can be effective in tactical situations; and the USSR is known to have a CW capability.

-- Our knowledge of USSR/Warsaw Pact capabilities is fragmentary at best. The USSR has the technological capability to produce modern nerve agents, but no actual production facility has been positively identified. We know that the USSR has chemical weapons stockpiles, but we do not know their size or composition even within very broad limits. There is no evidence that chemical munitions are stored with troops in Eastern Europe. We do know that USSR/Pact programs for defense against chemical attack, and thus their capability to conduct operations in a toxic environment, are considerably more extensive than those of NATO or the US.

-- The evidence indicates that a decision by the Soviets to use chemical weapons would be made at the highest political levels as would a decision to use nuclear weapons. Although the Soviets could decide to use chemical weapons without using nuclear weapons, no evidence indicates that they visualize a purely chemical war apart from the use of nuclear weapons.

-- The objective of our CW program is to deter the use of chemical weapons and to provide a retaliatory capability if deterrence fails. The current US chemical posture, while functioning as one deterrent against chemical attack, does not provide an adequate capability either for sufficient retaliation in kind against a large-scale attack or for extended war-fighting using chemicals on a large scale. The United States has [redacted]

[redacted] A 5 to 10 day capability for US ground forces is located at one vulnerable site in Germany.

-- The US is improving its defensive CW posture, but funding is substantially lower than JCS recommendations. The US is developing binary munitions which permit separate storage and transportation of two relatively safe components which, when combined, form a standard toxic chemical agent. Plans to produce binaries (starting in 1976) depend on further successful research and adequate production funding. We are not planning to produce chemical weapons pending the availability of binaries. Also, present plans call for considerably lower stockpile levels. Destruction of excess or obsolete stocks will take many years.

-- There is no significant CW threat to the continental United States. Our principal area of concern is Europe where there is felt to be a Soviet CW threat to US and allied forces. NATO strategy, while relying principally on conventional and nuclear capabilities for deterrence of chemical attack, envisions limited employment of chemical agents in retaliation and passive defense measures. NATO defensive capabilities are relatively meager. Other NATO countries (with the exception of France which has a small CW program) have very limited CW programs and no weapons stocks. It is unlikely that any other NATO country will develop a retaliatory chemical weapons capability.

-- The US has renounced the first use of lethal and incapacitating chemicals. The USSR is a party to the Geneva Protocol and has renounced the first use of all chemical weapons including riot control or harrassing agents.

-- There are virtually no public opinion constraints on USSR/Warsaw Pact programs. We are not aware that the Soviets have ever admitted even to their own public the existence of CW stockpiles or production facilities.

-- In contrast, some of the most important constraints on US and allied CW capabilities are political, resulting in large measure from acute public sensitivities about possible risks in the movement, testing, and storage of chemical weapons and from opposition to such weapons generally. Congress has enacted legislation which imposes a number of procedural requirements in connection with the transportation, storage, testing, and disposal of lethal chemical weapons. These requirements significantly impinge on our ability to

deploy lethal chemical weapons. Similar sensitivities in Europe make it politically very difficult for the US to introduce new or relocate existing chemical weapons. Present constraints on deployment of chemical weapons might be substantially reduced if we had binaries.

-- For at least the next few years, prospects for congressional funding of US CW programs are expected to be poor.*

-- An active research, development and testing program would provide the necessary continuity of technical competence in the general areas of CW offense and defense. An active R,D&T program is usually easier to sustain if it is in combination with a weapons development and production option.

-- None of the constraints discussed in the options below would apply to riot control agents or herbicides. Nevertheless, US proposals regarding chemical weapons might lead to questions about our failure to ratify the Geneva Protocol and about our position that RCAs and herbicides are not covered by the Protocol. (This position is the subject of a separate study and decision.)

B. Basic Question.

The basic question at this stage is whether to maintain our position that possible limitations on chemical weapons require further study before we adopt a specific approach to treaty negotiations, or whether we wish at this time to enter into negotiations with a view to achieving additional international treaty restraints on chemical weapons.

If the decision is to enter into treaty negotiations there are basically five options regarding the scope of a treaty. These options, and related options regarding unilateral actions and verification, are discussed following the advantages and disadvantages relevant to the basic question. (Regardless of the decision on the basic question, we could make a unilateral statement on the reduction in US stocks to underscore our willingness to take some steps in this area.)

The advantages of our present course are:

-- Limitations on chemical weapons would be inherently unverifiable and negotiations leading to treaty restraints would limit our programs without our being able to assure that others were complying with such limitations.

*The JCS maintain that CW negotiations attempted by the United States would be from a position of weakness considering its present posture vis-a-vis the USSR.

-- It would clearly keep our options open for further developing and improving our CW capabilities to the extent that political conditions permit. Chemical weapons provide a useful military option for retaliation against possible use of chemical weapons by others, since their use would place the same restraints on the tactical mobility and combat effectiveness of the opposing force.

-- We would gain time for further study of alternative courses of action and related technical issues.

The disadvantages of continuing our present course are:

-- Present prospects for Congressional funding to improve our chemical weapons program substantially are poor and we may find ourselves, in fact, with a very limited program while others would not be similarly constrained.

-- We might lose the opportunity to establish on our terms the basis for negotiations leading to international restraints on chemical weapons which could in principle equalize the presently better Soviet operational capability.

-- In the absence of a clear indication of the direction we want to move, positions of others may harden and the UNGA may endorse an approach which we might find to our disadvantage. There would be efforts to bring international and domestic pressure on the US to negotiate on the basis of such an approach.

-- US sincerity toward its commitment in the Biological Weapons Convention to continue negotiations on chemical weapons in good faith might increasingly be called into question. We might also appear unwilling to respond to apparent Soviet eagerness to move forward on an arms control issue mentioned in the Moscow summit communique.

If the decsision is to enter into treaty negotiations, there are five proposals that we could make regarding the scope of a possible agreement. There are also two related unilateral actions the US could take. All have their own distinct advantages and disadvantages which are discussed below.

Verification options which could be used with any of the five treaty proposals are discussed separately.

C. Treaty Options

1. Propose a Treaty Reducing Stockpiles and Prohibiting Transfer of Lethal and Other Highly Toxic Agents for Weapons Purposes.

(R&D and defensive measures would not be affected; modernization and replenishment within agreed stockpile levels would not be affected; countries with a CW capability would reduce to agreed levels; transfer of single and dual-purpose chemicals, precursors, and chemical munitions would be covered; countries without chemical weapons would be encouraged to become parties provided they agreed not to acquire stockpiles.)

Advantages.

-- This would allow binary production and modernization and improvement of CW stockpiles to provide a better retaliatory capability. Binary development, production, and stockpiling would provide a far better retaliatory capability if political constraints on transport and storage were alleviated.

-- Since we are planning to reduce stockpiles generally, and because some of the munitions are obsolete, we would have considerable freedom in selecting the actual level and methods of reduction.

-- Such an agreement would place international treaty constraints on the total quantity of lethal agents that could be stockpiled by the USSR and other parties and establish in principle a balance between US and USSR stocks.

-- It would be easier politically to justify a continuing level or increased level of R&D.

-- Maintenance of a sufficient retaliatory capability would serve as a deterrent and decrease the importance of verification.

-- If generally accepted, it would inhibit proliferation of CW capabilities.

Disadvantages.

-- Unless Congress funds new chemical weapons production programs (in particular binaries), we would face a situation in which the Soviets were free to modernize their agreed level of stocks, while the US was not able to do so.

-- There could be some Congressional, public and international criticism of the proposal as designed to justify continuation of chemical weapons production by the US.

-- It might be difficult to reach agreement on the stockpile reductions.

-- Such a proposal might not mitigate pressures by many countries for further CW restraints.

-- Some US allies, in particular the FRG, and many non-aligned would criticize this approach as discriminatory, because it allows chemical weapons states to stockpile, produce and modernize, while it asks others to forego chemical weapons completely.

-- This proposal might be more difficult to negotiate than the ensuing option.

2. Propose a Treaty Prohibiting Production and Transfer of Lethal and Other Highly Toxic Agents for Weapons Purposes.

(Existing stockpiles, R&D, and defensive measures would not be covered; production and transfer of single and dual-purpose chemicals and precursors would be covered, weapons loading and CW munitions production could also be covered.)

Advantages.

-- Retention of stockpiles would assure preservation of a deterrent and some retaliatory capability (though limited) and thus decrease the importance of verification.

-- Such an agreement would place international treaty constraints on the production of chemical warfare agents by the USSR and other parties similiar in effect to present fiscal and Congressional constraints on the US.

-- Resulting constraints would not significantly affect present US chemical weapons stockpiles before the 1980's -- and perhaps not until substantially later.

-- We would have a better framework for justifying R&D than with the ensuing options.

-- The proposal could channel international pressures for CW prohibitions toward achievement of treaty proposed by US.

-- The political and monetary costs of producing chemical weapons would be avoided.

-- If generally accepted, it would inhibit proliferation of CW capabilities.

Disadvantages.

-- The US CW capability might begin to diminish during the 1980's due to possible deterioration of stockpiles and to obsolescence of munitions. (In principle, the Soviet capability might also deteriorate under a production ban depending on the nature of their stocks and how they are stored.)

-- To the extent our CW retaliatory/deterrent capability deteriorated under a production ban, we would be in a less favorable position to respond in kind to an attack by a non-party or treaty violator.

-- The agreement would prohibit our producing binary weapons, the manufacture of which could begin by 1976 if present Congressional attitudes change and funding becomes available.

-- Achievement of such an agreement, though it could mitigate pressures, would not eliminate interest by many countries in further CW restraints.

-- An agreement might lead to a progressive deterioration of our R&D effort.

-- Some US allies and many non-aligned might criticize this approach as discriminatory since we could retain stockpiles while asking non-chemical states not to acquire stockpiles. (However, this would be less discriminatory than the first option because a prohibition on production would apply to all parties. The FRG is already prohibited from producing CW agents or munitions and therefore might regard this option as helping to equalize its position with respect to other countries.)

3. Propose a Treaty Prohibiting Stockpiles as Well as Production and Transfer of Lethal and Other Highly Toxic Agents.

(R&D and defensive measures would not be covered; stockpiles, production and transfer of single and dual-purpose chemicals and precursors, as well as munitions loading and weapons production would be covered; a time limit of 10 to 15 years for destruction of stockpiles would be established.)

Advantages.

-- This would place the maximum possible legal and political constraints on any stockpiling of chemical weapons and therefore could correct imbalances between ourselves and the USSR arising from the constraints on our deployment of stocks.

-- It would constitute a political deterrent to any Soviet stockpiling in Eastern Europe.

-- It would probably be the most readily negotiable in terms of scope (although some countries might want intrusive and non-negotiable verification procedures for such an agreement).

[redacted]

-- The political and monetary costs of producing chemical weapons and of maintaining chemical weapons stockpiles would be avoided. (There would, of course, be an initial cost for stockpile destruction.)

-- If generally accepted, it would inhibit proliferation of CW capabilities.

Disadvantages.

-- Upon completion of stockpile destruction, we would have no CW retaliatory capability to respond in kind to an attack by a non-party of a treaty violator. (Our current capability would of course progressively diminish as stocks were destroyed.)

-- We would lose the deterrent effect of a retaliatory capability vis-a-vis non-parties or treaty violators.

-- US R&D capability and perhaps even defensive capability could eventually become difficult to maintain.

4. Propose a Comprehensive Treaty Abolishing CW Research, Development, Production, Stockpiles, Training and Defensive Measures.

(Riot control agents and herbicides would be excluded from the treaty proposal.)

Advantages.

-- This would place the maximum possible legal and political constraints on all aspects of a CW capability and might correct imbalances between ourselves and the USSR.

-- Prohibiting such a wide range of activities would increase the likelihood of detecting a violation since national means alone would have a reasonable probability of detecting gross violations of the prohibition on defensive measures. (However, while some defensive measures are unique to CW, most are the same as radiological or biological defense measures and could be justified accordingly.)

[redacted]

-- The political and monetary costs of producing chemical weapons, of maintaining chemical weapons stockpiles, of research, and of building an adequate CW defensive capability would be avoided. (There would, of course, be an initial cost for stockpile destruction.)

-- If generally accepted, it would inhibit proliferation of CW capabilities.

Disadvantages.

-- Parties complying with the prohibition would have neither chemical warfare capability nor protective equipment to deter or deal with possible use of chemical weapons by a non-party or treaty violator.

-- It would be politically difficult to justify depriving troops and population of all CW defenses in the absence of nearly total certainty that other parties were abiding by their prohibitions and unless all relevant countries were parties.

-- Absence of R&D programs would impair US and allied technical competence in the general area of chemical weapons.

-- The comprehensiveness of the treaty might deprive the US of the flexibility to use riot control agents (and perhaps herbicides) in time of armed conflict.

-- It would be very difficult to make a meaningful distinction between chemical defenses and biological or radiological defenses.

5. Propose a Treaty Prohibiting CW Defensive Equipment Only.

(R&D, modernization and replenishment of stockpiles, production and transfer to chemical warfare agents would not be affected.)

Advantages.

-- This would place legal and political constraints

on defensive capabilities, an area where the Soviets now have a distinct and obvious advantage.

-- Since eliminating large-scale defensive preparations makes waging a chemical war very unattractive to both sides, this option might establish a mutual foundation for subsequent offensive limitations.

-- National means alone might have a reasonable probability of detecting gross violations of the prohibition on defensive measures even though many of these measures could be justified for radiological defense.

-- This option would allow maintenance and modernization (e.g., binary production) of our CW stockpiles, and provide a framework for justifying R&D.

-- The monetary costs of building an adequate CW defensive capability would be avoided.

-- If generally accepted, it would inhibit proliferation of CW capabilities.

-- Maintenance of a retaliatory capability by the US would continue the deterrent effect of the stockpile and decrease the importance of verification.

Disadvantages.

-- Parties complying with the prohibition would have no protective equipment in case of possible use of CW by a non-party of a treaty violator. Though the agreement would permit parties to have retaliatory capabilities a defensive capability is necessary to an adequate offensive capability.

-- It would be difficult to justify depriving troops and population of all defenses in the absence of nearly total certainty that other parties were abiding by their prohibitions and unless all relevant countries were parties.

-- Prohibition of defensive equipment might deprive the US of the flexibility to use riot control agents (and perhaps herbicides) in time of armed conflict.

[redacted]

-- Such an agreement, though it might mitigate pressures, would not eliminate interest by many countries in further CW restraints.

-- It would be very difficult to make a meaningful distinction between chemical defenses and biological or radiological defenses.

-- This agreement would probably be difficult to negotiate.

D. Related Unilateral Options.

1. Make a Unilateral Statement Regarding Substantial Reduction of US stockpiles.

(The statement could be independent of all other options or coupled with any. It would announce our decision to reduce stocks by a significant amount and could also promise destruction of some moth-balled production facilities. It might foreshadow a treaty proposal and even the general outlines of a proposal.)

Advantages.

-- Such a statement could capitalize on reductions we are planning to make in any event by underscoring US readiness to take concrete steps toward CW limitations.

-- It would gain time for further study of alternative courses of action and relevant technical issues.

-- If coupled with a statement that we were studying specific arms control proposals, it might inhibit crystallization of positions on CW arms control at the CCD, in the UNGA, and in Moscow thereby leaving future negotiating options more open for the US.

Disadvantages.

-- In the absence of a clearer indication of the direction we want to move regarding CW negotiations, positions of others may still harden and the UNGA may endorse an approach which we find to our disadvantage.

-- If there is no indication that we are studying further arms control measures, such a statement could be criticized as designed to avoid negotiations and as giving up nothing we had not already planned to give up.

[redacted]

2. Moratorium (with Options 2, 3, 4, or 5)
Declare a Moratorium on Certain US CW Activities in Conjunction with a Specific Treaty Proposal.

(Any moratorium, to secure the advantages listed below, would have to be accompanied or followed shortly by the treaty proposal itself and would have to be at least as far-reaching as a ban on production of CW agents. It might also include renunciation of weapons loading and/or production of munitions.)

Advantages.

-- A moratorium could serve to underscore a desire for progress on CW controls.

-- It could give us more time to work out treaty details, particularly with our allies.

-- It might inhibit crystallization of positions on CW arms control at the CCD, UNGA, and in Moscow. (Such hardening could make successful negotiation of our treaty proposal more difficult.)

Disadvantages.

-- The US, but not the Soviets and others, would be additionally constrained until the treaty we proposed entered into force or until the moratorium ran out -- an outcome we could not expect for at least a year or two and could not predict with complete certainty.

-- There might well be some erosion of our bargaining position if we were going for a limited measure. The Soviets and other could take our moratorium as a floor and press for this and other CW prohibitions.

E. Verification and Assurance Options.

(Since national means and on-site inspections cannot provide effective verification, the choice is among methods aimed at achieving marginal political constraints or additional deterrents against violating treaty provisions.)

1. Propose International Procedures Providing for a Consultative Committee of CW Experts, Agreed Exchange of Relevant Data, Periodic Declarations of Compliance with Treaty Prohibitions, and the Handling of Complaints of Possible Violations Through Consultations.

Advantages

-- Provisions for international cooperation in implementing a CW agreement would offer a marginal, basically political, element of assurance to potential parties against both violations and irresponsible charges. They would also promote compliance with the treaty's provisions through regular technical consultations.

-- Such provisions would be readily negotiable.

Disadvantages

-- These arrangements are more vulnerable than ensueing options to the criticism that they provide an inadequate mechanism for verification.

-- These alone would provide fewer political assurances and deterrents than with the ensueing options.

2. Propose Procedures as Above, Adding Voluntary On-Site Inspection to Clarify Doubts or Challenges Regarding Compliance.

(Parties could permit or invite inspection of any facility they controlled if they were challenged by another party regarding possible infractions of treaty provisions.)

Advantages

-- Parties could use provisions to resolve possible misunderstandings regarding compliance with treaty obligations.

-- Refusal by USSR to permit inspection might provide acceptable grounds for US to withdraw if we believed there had been a significant violation.

-- This might be negotiable.

Disadvantages

-- US might be embarrassed by request to permit inspection of facilities to which it would not wish to allow access by inspectors.

-- This procedure would provide little, if any, additional assurance that the USSR was not circumventing treaty provisions.

3. Propose Procedures as in 1 and/or 2, Plus an Obligation to Accept Inspection of Certain Declared Facilities.

Advantages

-- US could declare our three mothballed CW facilities and accept such inspection.

-- There would be pressure on USSR to declare one or more of its facilities. On-site inspection could go far toward determining whether these facilities were producing agents.

-- Soviet agreement to this provision and concomitant declaration of facilities would constitute added political assurance of their seriousness in entering this agreement.

Disadvantages

-- This procedure would provide little, if any, additional assurance that the USSR was not circumventing treaty provisions.

-- In view of past Soviet positions it would probably not be negotiable with the USSR and might appear to some as designed to prevent reaching agreement.

-- Since we have not been able to identify any Soviet CW production facilities, we would have difficulty establishing the basis for a public challenge of any Soviet declaration.

II. CURRENT SITUATION

A. Military Situation and Constraints.

1. United States.

The United States has renounced the first use of lethal and incapacitating chemicals and has stated that the objective of the US chemical warfare program is to deter the use of chemical weapons by other nations and to provide a retaliatory capability if deterrence fails. The current US chemical posture, while functioning as one deterrent against chemical attack, does not provide a sufficient capability either for adequate retaliation in kind against a large-scale attack or for extended war-fighting using chemicals on a large scale.

(a) Military Factors.

Tactical use of chemical weapons can greatly reduce the mobility and combat effectiveness of ground forces and increase their vulnerability. This restriction in mobility is a more critical factor than the casualty producing effects of chemical weapons.

There is no significant chemical warfare threat to the continental United States. Our principal area of concern is Europe where there is felt to be a Soviet CW threat to US and allied forces.

A review of the current US chemical posture indicates the following: [redacted]

US chemical munitions already in the FRG [redacted] for 5 to 10 days, depending on the tactics employed. [redacted]

[redacted]

Since the existing chemical stockpile in Europe is located at one site in Germany that would be a logical target for the Soviets, it is vulnerable to attack. In theory, the vulnerability of the stockpile could be reduced by dispersing it to locations nearer the delivery systems, but because of lack of storage facilities and the political problems of movement and storage of lethal chemicals in a foreign country, it is not possible to disperse the munitions during peacetime unless the outbreak of hostilities seems a real possibility.

Overall, the chemical defensive posture of the US armed forces is inadequate and significantly weaker than that of the USSR. The primary deficiencies are: (a) a lack of automatic detection and warning systems; (b) inadequate stocks of individual protective clothing; (c) limited supplies of decontamination equipment; (d) limited capability for suitable positive pressure protection for elements normally housed in mobile vans and shelters; (e) lack of an adequate capability for decontaminating air fields and first-line military aircraft; and (f) very limited ability of US naval combat vessels to operate in a toxic chemical environment.

The masks, protective clothing, alarms and shelters being procured would significantly improve US defensive capabilities if they were available in sufficient quantities. The FY 1973 budget calls for expenditure of $11.4 million on defensive equipment. This is 20% of the expenditure proposed by the JCS for defensive equipment procurement in FY 1973. The JCS considers that an expenditure of $576 million over an 8-year period is needed to remedy our chemical warfare defensive deficiencies.

Public concern over the potential toxic hazard associated with present lethal chemical munitions has resulted in severe restrictions being placed on the US CW program. A research program has been initiated to develop binary munitions which permit separate storage and transportation of two relatively safe components which, when combined, form a standard

toxic chemical agent. These ingredients are combined in the chemical projectile while it is in flight to the target. Such a system will not increase the effectiveness of the munitions but it will reduce hazards during manufacture, storage, transportation, and handling. Thus, it should be a more politically acceptable munition than those currently available.

Present plans call for production of binary 155 mm and 8-inch shells using both VX and GB. Plans to procure binary munitions, beginning with 155 mm GB rounds in FY 1976 and 8-inch VX rounds in FY 1978, are contingent on successful completion of current research and adequate production funding. Estimated costs are as follows:

	155 mm (FY 73-76)	8" (FY 73-78)
completion of development	$ 2.8 million	$11.1 million
production base establishment	6.8 million	2.9 million
first year procurement	17.4 million (FY 76)	8.5 million (FY 78)

Total stockpile objective cost (FY 76 through FY 1980)
$183 million [redacted]

No technical factors preclude the development of binary bombs or spray tanks. To complete development and to begin production of a spray system would require 4 years lead-time. A binary massive-fill bomb would take 5 years. Estimated R&D funds needed are $1.5 million for a spray system, $3.5 million for a bomb.

Current defensive R&D efforts are directed toward development of a chemical area-scanning alarm to supplement the M8 point-source alarm now in production and of protective masks and clothing that will afford improved protection against known agents.

(b) Non-Military Factors.

Some of the most important constraints on our chemical warfare capability are political constraints both abroad and in the US. These constraints arise from the acute

sensitivities of local population concerning what they consider to be the risks inherent in the movement or storage of chemical weapons.

In 1969 leakage from a chemical munition at a US installation on Okinawa created serious political problems for us which resulted not only in the removal from Okinawa of US chemical weapons stockpiles but also in political pressures which complicated our negotiations with Japan on the reversion of Okinawa.

The domestic political constraints in this area are at least as great. In one case, involving a plan to relocate the Okinawa chemical munitions to Umatilla, Oregon, the political pressures were so strong that the plan had to be dropped.

It seems doubtful that Congress will be prepared to support commitment of substantial resources to chemical weapons procurement in the next few years. Military procurement acts for FY 1970 and FY 1971 contained provisions prohibing use of appropriated funds for procurement of devices for disseminating lethal chemical warfare agents, unless the President certifies to Congress that such procurement is "essential to the safety and security of the United States" (50 U.S.C. 1516). Although such provisions are absent from the FY 1972 and thus far from the FY 1973 procurement act, this is not an indication that Congressional attitudes have changed.

Congress has also enacted legislation which seriously restricts our ability to deploy the chemical agents and munitions already produced. Legislation enacted in 1969 and 1970 (50 U.S.C. 1511-1518) imposes a number of procedural requirements in connection with the transportation, storage, testing and disposal of lethal chemical weapons. With respect to actions taking place in whole or in part in the United States, these include submission of plans to the Surgeon General of the Public Health Service, implementation of any safety precautions he recommends, and notification to Congress (and the Governor of any State involved) in advance. There are also special requirements for prior notification of any foreign government in whose territory such actions are to take place and for certain determinations by the Secretary of State which are to be reported to leaders of the Congress. (In practice, the determinations may be classified.) These provisions may

be suspended by the President, but only in time of war declared by Congress or of national emergency declared by Congress or the President.

The transporation, storage, testing and disposal of lethal chemical weapons also create political problems relating to presumed potential environmental effects and in many instances involve compliance with the Environmental Policy Act of 1969 (42 U.S.C. 4321-4374), including the filing of environmental impact statements.

All of the foregoing constraints significantly impinge on our ability to deploy lethal chemical weapons rapidly and without publicity. These political problems could be substantially reduced through the development of binary weapons, which would eliminate any serious safety hazard. In any event, it can be expected that public sensitivities concerning chemical weapons would continue to be materially greater than those concerning other types of weapons.

2. NATO.

NATO strategy, while relying principally on conventional and nuclear capabilities for deterrence of chemical attack, envisions employment of chemical agents in retaliation on a limited basis as well as passive defense measures against chemical agents. In practical terms all NATO countries rely on the US to provide the capability to retaliate-in-kind to a CW attack. (France is in some respects a special case and is discussed separately below.)

NATO defensive capabilities are relatively meager. Some, but not all, nations have sufficient quantities of protective masks for all troops. Protective clothing and detection devices are in short supply. In addition, none of the NATO countries would be able to provide significant defense against chemical attack to their civilian populations.

[redacted]

[redacted]

Concentrated chemical attacks could seriously disrupt NATO tactical operations. Because of the relatively weaker protective posture of US and NATO forces, chemicals used on the battlefield and in rear areas would be effective in creating high casualty rates. This would be advantageous to the Soviets during the early stages of hostilities before mobilization and reinforcement of NATO forces had been completed. Chemicals could be used to create barriers against NATO reinforcements as well as against withdrawing NATO units. Another use of chemicals would be to attack forward air bases in NATO possibly neutralizing a portion of the air strike capability. Chemicals could also be used to contaminate port, rail, and logistical complexes, thereby degrading the reinforcement and resupply system.

One NATO country, the Federal Republic of Germany, is subject to international legal constraints on CW production. Under the revised Brussels Treaty of 1954, the FRG is forbidden to produce chemical warfare agents or munitions on its territory.

[redacted]

From the poor defensive capability of NATO forces, it is clear that in general low priority is given to chemical warfare defensive preparedness. Because of this low priority and the high cost of providing adequate military and civilian protection, it is unlikely that NATO defensive capabilities will be substantially improved in the near future.

3. [redacted]

[redacted]

[redacted]

4. USSR/Warsaw Pact Capabilities.

Most of the available intelligence on Soviet policy and doctrine regarding chemical weapons dates from the early Sixties. This information is in the form of theoretical discourses on military strategy and doctrine. No official policy or planning documents are available. The information dating from later in the Sixties is mostly from East European sources, and reflects no apparent significant changes.

The evidence indicates that the Soviets consider chemical weapons subject to the same restrictions and controls as nuclear weapons, both classified as "weapons of mass destruction". Although the Soviets could decide to use chemical weapons without using nuclear weapons, there has been no evidence that they visualize a chemical war which does not involve the use of nuclear weapons. Once the nuclear threshold has been crossed, however, the Soviets would not be inhibited from using chemical weapons in battlefield actions. The decision to initiate the use of nuclear and chemical weapons would be made at the highest level of government. Once authorized, the front commanders would plan operations and leave execution to the lower echelons. Chemical weapons are viewed as complementary to nuclear weapons -- not as substitutes for them -- and as having their own peculiar attributes and advantages.

Chemical weapons are seen primarily as weapons for tactical rather than strategic use, and the Pact possesses systems capable of delivering chemical weapons up to the "operational" depth -- about 300 miles inside the battle area. There is no evidence that a chemical option has ever been considered for weapons of intercontinental range.

Chemicals would be delivered by conventional tactical weapons systems, and chemical munitions are believed to be available for tube artillery, tactical rockets and missiles,

multiple-launched rockets, and ground-attack aircraft. There is no information regarding the quantities of such munitions available, or how they would be delivered from their storage sites to the combat units.

The USSR and other Warsaw Pact countries are known to be conducting research and development related to chemical agents, including what is believed to be a major program directed at prophylaxis and therapy against nerve agents. The extent of offensively directed research and development is impossible to determine.

The Soviet Union has the technological capability to develop and produce any of the modern nerve agents, and its CW stockpile probably contains both the G- and V-type agents. Older agents, such as mustard and hydrogen cyanide, are also planned for use against certain types of targets, and are most likely stockpiled. There is no evidence of the actual production of chemical agents -- other than in limited quantities for experimental or training purposes -- though the existence of chemical munitions implies such production.

Despite continued observation and analysis of the several production facilities in the USSR which we have at one time or another suspected of chemical warfare activity, no actual production has been identified. It is possible that an agent production facility could be integrated into one of the large chemical complexes, and such a plant would probably not be too difficult to conceal. The conversion of related types of plants -- such as organophosphorous insecticide producers -- to chemical agent production in times of crisis is unlikely. Studies have shown that such conversion would be so technically complex that the construction of an entirely separate, new facility would be more feasible.

There is only one site in the USSR where there is convincing evidence and several others where there are good indications of the storage of chemical agent or munitions.

We have no evidence that chemical munitions are stored with troops in Eastern Europe. There are reports that field units have been instructed that chemical munitions will be supplied from unspecified locations.

There is no information on what quantities of the various agents or munitions might be in the stockpile or the storage practices involved. Although it is known that there are chemical munitions in the stockpile, the proportion of chemical agent in munitions to that in bulk storage is not known. Thus no estimate of the size of the total stockpile, even within very broad limits, is possible.

On the basis of Soviet exercises and documents, it is estimated that Soviet toxic chemical requirements for 30 days' military operations would be on the order of 30,000 tons.

Pact organization and military programs for defense against chemical attack are considerably more extensive than NATO's. The Pact places great emphasis on training for chemical defense, and Pact forces possess large quantities of equipment intended to permit operations in a toxic environment. Much of the equipment which would be employed for defense against chemical attack is also designed to be used for protection against the radiological effects of nuclear attack, and against biological agents. While this equipment and training provides them with a limited ability to operate in a toxic environment, the physical limitations imposed by protective equipment would greatly limit the tempo and duration of offensive action.

There are virtually no public opinion constraints on USSR/Warsaw Pact programs. The highly developed USSR/Warsaw Pact defensive chemical warfare capabilities indicates that their chemical warfare programs are not inhibited by financial constraints to the same degree as US/NATO programs.

5. Other Countries.

[redacted]

[redacted]

[redacted]it is likely that a limited capability to engage in offensive chemical warfare operations does exist.

China. The Chinese chemical warfare program has emphasized defense against chemical attack; their offensive capability is believed to be handicapped by the undeveloped nature of the Chinese chemical industry. The Chinese have a small CW research and development program. The Chinese are knowledgeable of both the conventional World War I-type agents, such as mustard, and the G- and V-type nerve agents, and have the technological capability to produce them in militarily significant quantities if required. Current production, if any, is unknown; there is no evidence of any production of nerve agents. The size and composition of the current stockpile of chemical warfare agents are also unknown.

Chinese tactics for the employment of CW, largely copied from the Soviets, are quite conventional. They regard tube artillery as the primary means of delivering an initial CW attack; there is little information concerning the tactical use of aerial chemical munitions.

Chinese chemical warfare protective equipment, mostly Soviet in origin or design, is good, but is not available in quantities sufficient to provide regular units of the PLA with more than a limited capability to protect against and recover from a CW attack. Elite troops, however, are fully equipped and receive specialized training in all phases of offensive and defensive chemical warfare. Army-wide training, as well as that in the Navy, emphasizes defense against CW and can best be described as fair.

B. The Negotiating Situation.

1. Use of CW - The Geneva Protocol.

The basic international agreement in this field is the Geneva Protocol of 1925 which prohibits the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices and bacteriological methods of warfare. Many states have ratified or acceded with reservations that have the effect of making the Protocol binding on the reserving states only with respect to other parties and of limiting the prohibitions to "no first use".

At present there are 98 parties to the Protocol. The USSR and its Warsaw Pact allies, as well as the PRC, are parties. The United States is the only major military power that is not yet a party. The US has repeatedly affirmed its adherence to the principles and objectives of the Protocol, but has considered that RCAs and herbicides do not come under the Protocol's prohibitions. President Nixon resubmitted the Protocol to the Senate in August 1970. Following hearings in March 1971, the Senate Foreign Relations Committee asked the President to reconsider the Administration's position that first use of RCAs and herbicides is not prohibited by the Protocol.

The principles of the Protocol have been observed in almost all armed conflicts since 1925 by parties and non-parties alike.* (Chemical weapons were used by Italy against Ethiopia in 1936, reportedly by Japan in a few instances against China early in World War II, and in 1963-67 by the UAR in the Yemen.)

In 1966, the US sponsored and voted for a UNGA Resolution that called for "strict observance by all states of the principles and objectives of the Protocol" and condemned "all actions contrary to these objectives". In 1968, 1969, and 1970 the US supported similar resolutions that were adopted with virtual unanimity by the UNGA.

2. Additional Arms Control Measures - Recent Discussion.

The question of possible controls on the development, production, and stockpiling of chemical weapons has been actively discussed at the Geneva Conference of the Committee

*The JCS note that many historians believe the primary reason that chemical weapons were not used in WWII was not the existence of the Geneva Protocol but rather the adversaries' belief that their opponents had an extensive, in kind retaliatory capability.

on Disarmament (CCD) and at the UN General Assembly since 1968. In September 1969, the USSR and its allies proposed complete abolition of both chemical and biological weapons -- an approach which these countries and many non-aligned advocated throughout 1970. In March 1971 the USSR agreed to negotiate a separate biological weapons (BW) convention as proposed by the United Kingdom and supported by the United States. Work on this convention was completed in 1971 and it was opened for signature in April 1972. This year CW has been the most intensively discussed issue at the CCD.

3. US Approach.

Since early 1969 the President has affirmed US willingness to explore proposals and ideas that could contribute to sound and effective arms control relating to chemical weapons and to seek solutions to the difficult problem of verification. In the BW Convention the US undertook a specific commitment to continue negotiations in good faith regarding limitations on CW.

At the CCD this year, we have taken the position that the most promising path toward sound progress in the CW field is through serious study and analysis of the complex issues involved. To this end, the US delegation submitted to the CCD in March a detailed "Work Program" on CW negotiations and in early July a number of additional working papers on CW definitions and other issues for a special meeting of CW experts.

While US working papers and statements regarding CW issues have been regarded as useful contributions, many delegations that were willing to go along with this approach through the July experts meeting now feel that further study should be in the context of solving specific treaty issues.

4. Approach of Other Countries.

In March 1972, the USSR and its allies tabled at Geneva a draft convention, based closely on the text of the BW agreement, calling for total elimination of chemical weapons. The Soviets have, however, indicated that they are flexible. They have placed on record their willingness "to consider and to discuss other proposals aimed at a constructive solution of the problem"; they have privately made clear their desire to enter into concrete negotiations and have invited counter-proposals from the US.

Our allies have as yet taken no firm position on the parameters of possible CW limitations. Recently, however, some have indicated a desire to move forward in this area.

[redacted]

The non-aligned generally favor comprehensive prohibitions and recently have been pressing hard for concrete negotiations. While many participated in earlier technical discussions, most now insist that further study will only be useful if focused on specific treaty provisions. A non-aligned group has begun work on a paper dealing with scope and verification. Sweden and the UAR have proposed that the Soviet draft be accepted as a basis for negotiations while Yugoslavia, Morocco, and others have called on the US to submit counter-proposals.

III. POSSIBLE INTERNATIONAL RESTRAINTS

A. Verification and Assurances.

The desirability of specific international restraints on CW should be considered in light of the following points:

-- There are no dependable means of verifying compliance with most possible types of prohibition or limitation on chemical warfare activities.

-- Nerve agents could present a major threat to the military forces of the major powers as, to a lesser extent, could mustard. The potential threat is tactical, not strategic.

-- The requirement for verification of a CW agreement is influenced by the military significance of chemical weapons relative to other weapons at a nation's disposal.

-- A government considering the decision to violate a CW treaty must take into account the consequences if a violation were detected. Other countries might undertake corresponding CW activities. Public knowledge of the violation might alienate support in neutral, friendly and allied countries. Since violation of international law would be involved, it would raise questions as to the reliability of the country's signature on other international agreements.

1. National Means.

To date we have not been able, through national means, to quantify current levels of CW activity in the USSR and other countries, or, in many aspects of CW activity, even to tell with confidence if there are any programs underway. It would appear very doubtful that we could have any confidence of detecting through national means a change in the USSR's CW posture. We would not be able to determine sites or quantities of production, types of agents, stockpile levels and locations, R&D, or international transfers. We would probably be able to determine if a known or declared mothballed facility had been put back into production.

2. International Means.

A CW arms control proposal could prescribe specific international procedures with regard to verification and

enforcement in order to provide:

-- procedures for updating relevant standards;

-- a mechanism or at least agreed channels for an orderly exchange of relevant data;

-- a modest incremental restraint on a prospective violator through participation of its CW experts in international activities designed to promote observance of treaty prohibitions;

-- agreement on steps to be taken to resolve any misunderstandings or disputes and to clarify whether suspected violations had taken place;

-- procedures for possible inspections;

-- a framework for focusing international attention on alleged violations;

-- a framework for considering sanctions against a violator.

The US interest in promoting any such arrangements would depend on their effectiveness, cost, general acceptability, and the degree of control that we would have over their implementaiton.

(a) Existing International Organization.

UN procedures and organizations could be used to carry out some of the above functions.

Smaller countries would welcome the assigning of the tasks of gathering and transmitting data and investigations to the UN Secretary-General, which in essence means to the Secretariat. The Soviets, however, would almost certainly not go along with such an arrangement. While the US has been prepared to have the UN Secretariat perform some limited implementation functions with regard to arms control agreements, we often possess only limited control over its actions. No existing organization is as readily qualified to take on responsibilities with respect to a CW agreement as the IAEA was for the NPT.

The UN Security Council could also be charged, as it was in the BW Convention, with considering and investigating complaints regarding violations of an agreement. SC decision to consider such a complaint is procedural and determined by majority vote; decision to investigate is, however, subject to veto. This obviously has both advantages and disadvantages for the US. However, a specific drawback to such an arrangement is that the PRC might reject the assumption of this role by the Security Council and veto any investigation, in part because of its sensitivity to ROC status as a party to an agreement. In addition, some countries would resist a provision which permits use of the veto to block an investigation.

The threat of having possible charges of violation aired before the Security Council might exert some constraint on a potential violator. It should be recognized, however, that treaty provisions regarding such procedures would not significantly enhance the already existing possibilities for using UN Charter provisions to focus attention on a violator.

(b) Consultative Committee.

The US Work program submitted to the CCD discussed the possibility of establishing a standing consultative body, to perform certain functions in connection with a possible CW agreement. These functions could include:

-- Technical tasks such as reviewing determinations about classification with regard to agreed prohibitions and definitions.

-- Consultative and information tasks to help assure parties that the provisions of any agreement were being carried out. It could receive and transmit relevant economic data and information such as the intended use of organophosphorus chemicals. It would perhaps serve as the forum for arranging inspection visits to clarify ambiguous situations.

While recent multilateral arms control agreements have not established or defined special roles for such a body, a special consultative group might be able to perform constructive functions in connection with a CW agreement. Given the complexities of CW verification, a consultative body might offer some additional element of assurance to potential parties against both violations and irresponsible charges. Participation of

appropriate governmental, military and scientific representatives might in itself contribute to international confidence, understanding, and cooperation in dealing with problems inherent in implementing restraints on CW.

Some organizational questions regarding such a body could be settled in advance; others would have to be worked out by the participants. There could be a requirement that certain parties to an agreement, such as the depositories, take part in such a body, while participation might be optional for other parties.

There would, of course, be some financial restraints on the size, regularity of meetings, and administrative support for such a body.

Establishment of such a body might well be negotiable. A number of our allies and some non-aligned have shown considerable interest in an expert body in connection with any CW agreement. In July a Soviet expert spoke to the CCD about the possibility of annual conferences of experts to exchange information concerning chemical products that could be used for producing chemical weapons.

The Soviet expert also suggested the creation of national committees to implement CW controls. They would conduct their activities on the basis of a single international program containing the necessary norms and rules. The Soviets did not make clear, however, whether such standards should be described in a verification article or whether the entire development of standards would be left to meetings of experts after an agreement was in force.

3. On-Site Inspection.

"Inspection" means an actual visit to a facility by technically qualified personnel. The goals of inspection are to deter illegal activities by making exposure probable, to obtain information on suspected violations, and to supply conclusive evidence in the event a treaty violation is uncovered.

Provisions for on-site inspection could specify:

-- scope of inspection - facilities and activities depending on the scope of the prohibitions.

-- triggering mechanism - ranging from periodic inspection of a few designated facilities to challenge or even a right to inspect anything anywhere at any time.

-- auspices - on a bilateral basis or under the aegis of an international organization.

-- inspectors - full-time experts or an ad hoc group.

-- access - observation from the perimeter of a facility; unrestricted access to any area within a facility; the right to examine records and sample material being processed.

Effectiveness: The extent of inspection that could be carried out in connection with a CW agreement would be severely limited by both political and financial constraints, regardless of the exact system established.

The principal technical problem, which severely limits the utility of on-site inspection, is the extreme difficulty in obtaining reliable, comprehensive intelligence information about the location of possible CW-related facilities. It would be very difficult to have any high degree of assurance that an on-site inspection program was covering all of a nation's chemical weapons production facilities unless a very large number of inspections were undertaken -- and even then we could not be sure. Inspection of a small number of facilities, particularly if confined to facilities designated by the host government, would provide little assurance that clandestine chemical weapons production was not taking place in the country in question. Intelligence data, derived from all sources, would be the principal basis for site selection even if all chemical weapons-related facilities had been ostensibly declared.

On-site inspection of production facilities would be more effective in detecting a treaty violation than inspection of transportation, storage, or testing facilities. Conclusive proof of illegal activities, however, could only be obtained if samples were taken for chemical analysis. On-site inspection within an industrial chemical plant could probably verify that it was not producing chemical weapons. Observation from the perimeter of a plant would not be effective. At declared chemical weapons facilities that had been shut down inspectors could detect prohibited activities (or absence of any activity) with little difficulty.

Acceptability to the US. Provisions for on-site inspection of US facilities in connection with international limitations on chemical weapons might be acceptable provided:

-- Regular inspection was limited to certain sites designated by the US. International inspectors could not be guaranteed unlimited access to either US military CW facilities or to commercial chemical plants. It might be possible to designate certain mothballed military CW production facilities where regular inspection could be permitted with no detriment to US security. It would be more difficult to assure access for such inspections to civilian facilities.

-- The US could veto any challenge inspection (except of certain designated facilities) that might be requested by another party or by an international organization. Again, the US could not guarantee access to any facility or installation where others might claim prohibited activities were or could be taking place.

Negotiability. Any obligatory inspection would not be broadly negotiable. Voluntary inspection might be broadly negotiable, even with the Soviets, provided all participants had equal opportunity both to request inspection of others and to veto or refuse inspection of their territory.

Most Western countries would probably be prepared to accept some inspections - but only with the same restrictions as the US would require on any such provisions.

The Soviets are highly unlikely to accept on-site inspection within the USSR even of certain declared military facilities. They would argue, inter alia, that comprehensive on-site inspection is unacceptable to them, is not feasible, and would not really be acceptable to the West. As for inspecting certain specified facilities, they would insist that this would add little additional assurance since treaty violations could take place at numerous other locations. Even if they accepted the concept of inspection of certain declared CW production facilities they might declare none. They have never admitted the existence of CW production plants in the USSR.

While a few non-aligned countries might be prepared to grant broad access for inspection in connection with

a CW agreement, most would be unwilling to permit access to military or to commercial installations. Many would press for complete equality among all parties in the application of inspection provisions.

A related consideration with respect to CW negotiations is that, in light of the limited effectiveness of inspecting only certain designated facilities and the known unacceptability to the Soviets of any obligatory international inspection on Soviet territory, a US proposal calling for this would be viewed by many as aimed at blocking progress toward an agreement.

4. Provision of Data

(a) Data on Facilities and Stockpiles

An agreement prohibiting CW production could contain provisions calling on parties to make declarations regarding:

-- production facilities - Such declarations could provide positive identification of facilities that are producing or have produced chemical warfare agents or munitions, their location, and possibly their capabilities. Alternatively, declarations could simply be negative, affirming that the party either had no facilities for chemical weapons production or that it was not producing chemical weapons.

-- stockpiles - Parties might agree to provide declarations positively identifying the size, location, and/or composition of their CW stockpiles or stating that they had no stockpiles. Alternatively, parties could agree to declare quantities of stocks destroyed and/or replenished without declaring the actual size, location, or composition of their stockpiles.

Effectiveness. Declarations regarding production facilities in the USSR would, if accurate, provide significant additional assurance regarding Soviet compliance with a prohibition on chemical weapons production. This would be particularly true if facilities declared appeared to be sufficient for estimated Soviet chemical weapons needs. However, without on-site inspection it would be difficult to determine whether declared facilities were in fact capable of CW production. It would, of course, not be possible to determine whether all such facilities had been declared. Periodic declarations regarding non-production of prohibited substances would provide a modest additional political constraint against violations.

Declarations regarding stockpiles would provide little assurance regarding compliance with prohibitions on CW production - except in countries with no chemical weapons capabilities where any detection of stocks would reveal a violation. On the other hand declarations concerning stockpiles would provide a modest political constraint against prohibited increases in stockpiles.

Acceptability to the US. The US would be prepared to provide quite detailed information concerning the location and perhaps capabilities of its military CW production facilities. We might be prepared to make some statement concerning overall quantity of our stockpiles, but we would certainly not want to provide detailed information on the size, composition, or location or our stockpiles.

Negotiability. Most Western countries would, like the US, probably be prepared to provide information on production facilities. With the possible exception [redacted] no Western countries are believed to have CW stockpiles.

The Soviet Union has never admitted possessing chemical weapons production capability, and it is most unlikely that it would agree to provide information on production facilities in connection with a CW arms control agreement. It would almost certainly refuse to divulge any information on stockpiles. It is quite possible, however, that the USSR and its allies would be prepared to make declarations on a periodic basis that they were not producing any CW, the manufacture of which was proscribed or controlled by a treaty.

Many countries that have no capabilities would be prepared to make voluntary statements to this effect, though they would probably not accept a treaty obligation to do so which did not cover all parties.

(b) Economic Data

Organophosphorus nerve agents are the only nerve agents known or suspected to be in national stockpiles. Since elemental phosphorus is an essential ingredient in the manufacture of these agents, it is conceivable that a detailed data-reporting and monitoring system might be proposed for verification of a ban on nerve agent production.

Data monitoring for non-phosphorous agents and dual-purpose chemicals (industrial chemicals that can also be used for weapons) would be much more massive and intrusive than phosphorus monitoring.

Effectiveness. There are currently no effective methods for discovering clandestine phosphorus production facilities or phosphorus stockpiles. Consequently, data

monitoring of phosphorus production and consumption would not provide assurance of compliance with a production ban, since it is impossible, even with extensive inspection, to ensure that the data reported are comprehensive.

Nevertheless, provisions for data exchange might provide a measure of additional political constraint, since a nation wishing to violate a production ban would have to submit deliberately false data. In addition, provisions for data exchange might provide some slight benefit by increasing our meager knowledge of the Soviet chemical industry.

Acceptability to the US. Most of the data which would be reported in the US is already available in the form of industrial records. Although not all of this information is collected by the US Government, this could be accomplished if necessary. Adequate procedures already exist within the US Government for safeguarding commercial secrets.

The submission to other countries or to international organizations of aggregated data would probably be acceptable to the US chemical industry. However, reports on individual US companies or plants using the monitored materials is likely to be unacceptable to US industry.

Negotiability. Since the Soviet Union and several non-aligned delegations have suggested use of economic data as a method of verification, it is likely that treaty provisions for this type of exchange could be negotiated if this were acceptable to the US and its allies. However, provisions for extensive on-site inspections by an international authority needed to ensure any degree of reliability would be unacceptable to most countries.

B. Activities and Facilities

1. Production and Stockpiles

A key element in any CW proposal would be its treatment of production. This would affect many other features of a CW program, including stockpiles, weapons-loading, and R&D.

(a) Agents Covered

(1) Single-Purpose Agents. These agents have no large-scale uses except in chemical warfare. Modern agents in this category, such as organophosphorous compounds, are extremely toxic. Some older agents, which caused a number of deaths in World War I, also fall into the "single-purpose" category. Single-purpose agents form the core of current US chemical warfare capability (and probably the Soviet capability), and would logically be covered in any CW proposal.

(2) Dual-Purpose Agents. Dual-purpose agents are chemicals which are used for non-military purposes, but which can also be used as chemical warfare agents. Phosgene, chlorine, and hydrogen cyanide are well-known examples which were utilized in the First World War. The US does not produce such agents for weapons purposes.

Dual purpose agents might be of more relevance than single-purpose agents to chemical warfare among less highly industrialized states and to avoiding the proliferation of chemical weapons, even though the military value of the older dual-purpose agents is marginal for the US. Some insecticides are sufficiently toxic that they could, in fact, be considered dual-purpose agents. In the event that peaceful applications are found for single-purpose agents, we would have a problem of how to maintain restrictions on their military use without hampering such peaceful applications. Coverage of dual-purpose agents should provide a framework for dealing with this proplem.

Thus to be broadly acceptable any proposal proscribing production should place restrictions on dual-purpose agents produced for hostile purposes. To allow a country to produce military stocks of dual-purpose chemicals would undermine the significance of restrictions on single-purpose agents.

(3) Precursors. Precursors are used in the production of modern agents and may or may not have civilian applications. Phosphorus trichloride, for example, a key precursor of organophosphorus nerve agents, is widely used in the manufacture of pesticides and plasticizers. On the other hand some precursors of nerve agents have no current civilian applications. Under present conditions, agent precursors do not assume immediate military significance until processed further into an agent, but binary devices, by using intermediates as weapon components, could blur this distinction.

A party should not be permitted to accumulate stores of precursors for rapid conversion for weapons purposes. For a proposal to be taken seriously, the same restrictions would have to be put on precursors intended for military purposes as are put on single-purpose agents. We could not expect to get agreement to a proposal which banned production of current agents but exempted from its provisions our planned follow-on chemical weapons -- binaries.

(b) Stockpiles

(1) Shelf-life and Obsolescence. Restraints on stockpiles may operate either directly, as a consequence of restrictions on the stockpiles themselves, or indirectly, as a result of restraints on production of agents and munitions.

If production of chemical warfare agents and munitions were prohibited, the US and other parties which already had stockpiles would not be allowed to replace agent or munitions which were no longer usable because of deterioration or obsolescence. These two processes would eventually -- perhaps after quite a long period -- reduce stockpiles to zero. It is important to note that the length of time a stockpile is usable (the shelf-life) is not determined by its size.

[redacted] Agent stored in bulk containers [redacted] will probably retain its potency longer than agent in filled munitions. Technical means are available to maintain bulk agent at high potency for an extended period, if adequate funds are provided. For example, storage of bulk agent in a moderate, controlled environment could extend its shelf-life. At present US bulk agent is stored in containers, most of which are in the open and often exposed to relatively high temperatures at which agent tends to deteriorate to some degree. If agent were redistilled to maintain its potency, some decrease in total quantity would occur.

[redacted] The shelf-life of filled munitions [redacted] is at least 15-20 years. Artillery rounds filled [redacted] show no signs of serious deterioration, nor do artillery rounds filled [redacted] The average age of [redacted] The rest of the munitions are filled with [redacted]

Measured in tons of agent, [redacted] filled munitions make up [redacted] of US chemical munitions stocks, [redacted] filled [redacted]. The bulk of the munitions containing [redacted] are 6-10 years old; those filled with [redacted] have been in storage 5-9 years. No significant deterioration has been observed in either case.

At the present time obsolescence of the delivery system is the limiting factor in determing the useful life of filled munitions. Present stocks of 155 mm and 8-inch artillery rounds, as well as 4.2-inch mortar rounds are expected to remain usable well into the 1980's. Current aerial-delivered CW munitions (bombs and spray tanks) and chemical land mines are also expected to remain in the stockpile. Together these items compose [redacted] of current filled munitions stocks. Chemical rockets and 105 mm howitzer rounds [redacted] of filled munitions) are expected to remain in usable condition into the 1980's but may not in fact be usable if their delivery systems are phased out. Sufficient rocket launchers and howitzers could easily be made available if given funding priority. If adequate funds for maintenance and for replacement of obsolete delivery systems were available, the US, relying on current chemical munitions, would retain a deterrent about as satisfactory (or unsatisfactory) as at present for an extended period, even under a total ban on production of chemical agents and munitions; however, according to JCS reports replacing delivery systems for current munitions would be more expensive than replacing munitions with binaries.

(2) Stockpile Reduction. Reduction of stockpiles by an agreed amount or to an agreed level would permit nations with stockpiles to retain a capability to retaliate in kind to a chemical attack. The agreed level of retained stockpiles could provide a retaliation-only capability as opposed to a long-term warfighting capability. [redacted] of the US stockpile is made up of [redacted] much of which is considered excess and planned for disposal during the mid 1970's. The remainder is to be retained pending procurement of binary munitions. Thus a substantial reduction of stockpiles, particularly if phased over a period of time, would have little impact on current or projected US retaliatory capability.

(3) Stockpile Modernization. Stockpiles could be reduced without prohibiting modernization and replenishment. This is an important military consideration. Although the deterrent effects of our current stockpile could continue for some time to come, its composition, age, condition and disposition do not now provide an adequate capability for sufficient retaliation in kind against a large-scale attack

or for extended warfighting using chemicals on a large scale.

Additionally, political and public constraints seriously impede the movement, storage and development of current chemical weapons. Acquisition of binary chemical weapons, which could alleviate these constraints, appears to be the only practical course for improving the US retaliatory capability.

2. Munitions and Other Means of Delivery

(a) Current Munitions

While current chemical munitions and other means of delivery are very similar to conventional weapons, some of them must be specially designed and manufactured for CW purposes. A ban on production of chemical munitions and other delivery means could be a logical ancillary measure in the context of an agreement to destroy all existing agent stockpiles.

It would, of course, not be possible to prohibit the production of dual-purpose munitions, i.e., munitions such as artillery shells that could be used for both high explosives and the dissemination of chemical agents. However, as an adjunct to a ban on new agent production, a prohibition on the production of munitions specifically intended for using chemical agents would, if implemented, also contribute to restraints on CW capabilities by preventing parties from using already existing bulk stocks to increase their stocks of filled munitions. In this case, the US would be prevented from using bulk stocks we already possess [redacted] of our total stocks) for replacement of deteriorating filled munitions. A proposal to prohibit production of chemical warfare agents which did not prohibit production of chemical munitions could be criticized as containing an obvious loophole.

(b) Binary Munitions

Since binary munitions contain two agent precursors, a ban on production of precursors for weapons purposes would prevent production of binary munitions as well. This would be true even if production of the required shell casings were allowed, as precursor stocks are not now available for loading into the casings.

3. Weapons Loading

Given a stockpile of chemical agents and available weapons or other means of delivery, the time required for weapons-loading could be relatively short. If the weapons (for example, artillery shells) were not available, the time required for their procurement and loading would be one year or more.

Existing loading lines for chemical weapons are likely to be located at agent production facilities. If agent production were prohibited but loading at production plants from existing bulk stocks allowed, serious ambiguity could result regarding the compliance with a production ban.

A ban on loading would not appear to be logical if munitions production were permitted. If both chemical munitions production and weapons loading were prohibited, the US would not be able to use bulk stocks to replace deteriorating munitions. On the other hand, our lack of unfilled munitions would make a ban on weapons-loading a logical accompaniment to any ban on production of munitions. A proposal to prohibit production of chemical warfare agents which did not prohibit weapons loading could be criticized as containing an obvious loophole.

4. Production Facilities

If chemical warfare agent production were totally prohibited, parties might be required to dismantle or moth-ball certain facilities (which in most countries, including the US, would be military) for production of single-purpose agents or to convert them to peaceful purposes. Such provisions, if lived up to, would make it more difficult to resume chemical weapons production at a later date. A requirement that chemical weapons production facilities be moth-balled or dismantled, if implemented, would place the Soviet Union under constraints comparable to those which already affect US nerve agent production facilities.

If the US decided at some future date to resume production of chemical agents, several courses of action might be considered:

-- produce "conventional" chemical weapons

a. reactivate old plants
b. build new plants

-- produce binary chemical weapons by building new facilities

US facilities for GB production have been mothballed since 1957 and the VX plant since 1968. Maintenance of all plants has been minimal, resulting in extensive deterioration. To bring the VX plant back into production would require considerable rebuilding. Reactivation of the GB plant at Rocky Mountain Arsenal would require dismantling facilities currently being used for demilitarization of obsolete munitions and reinstalling certain filling equipment.

Data on the lead-time and costs for resuming chemical warfare agent production are given in the table below:

			lead-time	cost-millions
1.	"conventional" reactivation	GB	2 yr.	$35-40
		VX	2 yr.	$26
	new construction	GB	20 mo.	$120
		VX	16 mo.	$82
2.	binary new construction	GB	12 mo.	$10

The lead-time and costs for reactivating the current plants will probably increase appreciably with time due to deterioration.

The course of action that would allow resumption of CW agent production most rapidly appears to be construction of facilities for manufacturing binaries (assuming that R&D is already completed at the time). During the 1970's, however, only GB binaries are likely to be available.

Resumption of production of VX chemical munitions would be accomplished most rapidly by constructing a new plant.

It should also be noted that unless production of munitions hardware (shell casings, etc.) were given high priority, the hardware production process, rather than the agent production process, might determine how fast chemical munitions production would be resumed.

5. Research, Development and Testing

Maintenance of a research, development and testing program under a CW agreement would serve to guard against technological surprise, but more importantly to provide a continuity of technical competence in the general area of CW. Since this is a fairly mature technology we do not anticipate technological improvements that would alter in a major way the overall effectiveness of chemical weapons. Maintaining an RD&T program would also ensure that production of binary munitions would be possible if the US decided, for compelling security reasons, to resume production of chemical munitions. On the other hand, an effective ban on research, development and testing would prevent the Soviet Union or any other potential adversary from improving its CW capability.

It would be extremely difficult to determine and to specify clearly what research, development and testing could be useful militarily. As an example, the discovery of chemical warfare agents would be an accidental by-product of academic or industrial research. Nerve agents are an off-shoot of industrial research on insecticides. It would also be extremely difficult in practice to separate R&D for offensive purposes from defense-oriented R&D.

The testing that might be limited for treaty purposes would also be difficult to specify. Some testing is required to obtain knowledge of a stockpile, particularly as the stockpile grows older. Development of defensive equipment also involves testing.

~~We should have in mind, in shaping and presenting~~ any CW proposal, the problem of possible erosion of public

and Congressional support for a research, development and testing program under a CW agreement.

6. Defensive Measures

A ban on chemical defense would have some inhibiting effect on use of chemical weapons, as a nation contemplating first use would have to take into consideration that its own troops and population would be undefended against whatever retaliation could be carried out.

It would appear likely that a number of countries would hesitate to subscribe to an agreement leaving them so vulnerable to a chemical attack from a non-party or a treaty violator.

Masks suitable for use against RCA would presumably be omitted from the ban, as would decontamination equipment justified as intended to cope with radiation or BW hazards.

7. International Transfer

Parties to an agreement should be prohibited from evading it by dealing with non-parties. A ban on international transfer would enhance the security of all parties by inhibiting the proliferation of offensive CW capability through transfer of stocks or of production technology and facilities. There are strong precedents for such provisions in previous arms control agreements.

The US currently has no plans for transfer of operational quantities of lethal chemical munitions or of technology or facilities for their production. However, there is almost total exchange of R&D information with [redacted] Laboratory and test quantities of agent are exchanged as needed for cooperative R&D programs. [redacted] also participates in the exchange arrangements, but to a lesser extent. These activities would not be affected by a transfer ban.